Cross Laminated Timber
Opportunities for NZ (Wood Manufacturing Operations)

js betz consulting ltd
design to production of timber structures

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www.jsbetzconsulting.com
Specialist Services for the New Zealand and Australian Timber Industries

Coming up:

How to prefabricate the timber structures of tomorrow? What we can learn from Europe.
Presentation Sept 7th, 2011 at the BNZ Forest Industries Conference, Rotorua

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Cross-Laminated Timber (CLT)

- Typically 3, 5, 7, or odd number of layers
- Sawn lumber main input material
- CLT panel sizes: ~3x16m
- Typical end uses: wall/floor/roof panels
Cross-Laminated Timber (CLT)
Solid wood construction – The Tradition
Solid wood construction – The Innovation
CLT – adhesive & pressure

0.1 - 0.6(0.8) N/mm²
Features & performance

- Environmental
- Thermal
- Fire
- Structural
- Acoustic
- Seismic
- Cost
Structural characteristics

• Structural properties can be engineered!
  – Spans up to 7.5m (230mm, 7ply floor) *overseas product
• Longer spans for hollow box or folded structural CLT systems
• CLT is effective in spreading point loads
Acoustic performance

• CLT is successfully used for buildings with very high acoustic requirements: apartments/hotels/etc.

• ‘Flanking’ can be an issue. Ways to address this:
  – Suspended ceilings, floating floors
  – Discontinuous walls across stories/ floors across units
  – Acoustic separation
Seismic performance

- 3- and 7-storey full scale CLT buildings were tested by IVALSA (magnitude 7.2, accelerations of 0.8 to 1.2g)
Cost

- Standard panel: 750 - 1200 - 1700 $NZ/m3
  (*overseas product; current exchange rate; various thicknesses/ grades/ qualities...)

- Compared to stick-frame construction, more cost for fibre, but savings in construction time due to prefabrication.

- Requires more ‘holistic’ cost comparison => cost of raw panel does not provide final answer regarding cost competitiveness.
CLT – construction details

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The CLT building system/construction

Rapid construction

Versatile

Lightweight

Less waste

Less demanding of skilled labour on site

Precise

Safe
CLT – production and markets

• 20% annual growth of European CLT industry over past 10-15 years
• Leading countries in use of CLT:
  Austria, Germany, Switzerland, Sweden, Norway, and the UK
• XLam NZ: ~8,000 m3/year capacity

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The CLT opportunity!

- Forest owners
- Sawmillers
- CLT manufacturers
- Developers
- Architects/Engineers
- Building owners/occupants

⇒ Opportunity for NZ economy and community!
CLT structures – some examples
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Thank you.

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